REMARKS/ARGUMENTS

Reconsideration of this application is requested. Claims 42-53, 55, and 57-82 are in the case.

I. ELECTION/RESTRICTIONS

The election, with traverse, of Group I, claims 42-70 is affirmed. Claims 71-82 are withdrawn. However, in light of the amendment to claim 42, it is believed that the claims do not lack unity of invention. Rejoinder of claims 71-82 is accordingly respectfully requested.

II. SPECIFICATION

The specification has been amended to include a heading for the drawing. No new matter is entered.

III. THE FORMAL REJECTION

Claims 44- 46, 50-53 and 68-70 stand rejected under 35 U.S.C. §112, second paragraph, as allegedly indefinite for reciting the limitations "such as", "for example", "preferably", "most preferably" and/or "more preferably". In response, the claims have been amended to remove these expressions.

Claims 57, 65 and 66 are rejected under 35 U.S.C. §112, second paragraph, as allegedly indefinite because claim 57 does not define the limits of the variable "e". Claim 57 has been amended to correct this typographical error. Support appears in

claim 16 and at page 5, line 15 of the PCT specification as filed. No new matter is entered.

Withdrawal of the formal rejection is now believed to be in order. Such action is requested.

IV. THE ANTICIPATION REJECTION

Claims 42-48,51 and 52 stand rejected under 35 U.S.C. §102(b) as allegedly anticipated by Archibald (U.S. 2,435,379; 02-1948). The rejection is respectfully traversed.

Claim 42 as amended claims a method of preparing a catalyst which is suitable for the oxidation of ethane and/or ethylene. The method involves forming a slurry of the one or more metal components and alpha-alumina support particles or an alpha-alumina support precursor, and spray-drying the slurry. The catalyst is selected from a catalyst which comprises palladium as the metal component and a catalyst which comprises a combination of molybdenum, vanadium and niobium as the metal components.

Claim 42 has been amended to incorporate subject matter from claims 54 and 56, and those two claims have been canceled without prejudice. The anticipation rejection does not include claims 54 and 56. Based on this amendment, it is clear that claim 42 is not anticipated by Archibald.

The following additional reasons are presented as to why Archibald does not anticipate the invention as now claimed.

First, claim 42 is specific in requiring "alpha-alumina". Alumina exists in a number of different forms, for example, alpha-alumina, gamma-alumina and theta alumina. While Archibald discloses "alumina" in general, there is no specific disclosure of alpha-alumina. Secondly, there is no disclosure in Archibald of the combination of alpha-alumina and palladium. Thirdly, there is no disclosure in Archibald of the combination of alpha-alumina and the combination of molybdenum, vanadium and niobium.

In the absence of the above disclosures, it is clear that Archibald does not anticipate the claimed invention. Withdrawal of the anticipation rejection is accordingly respectfully requested.

V. THE OBVIOUSNESS REJECTION

Claims 42-48 and 50-70 are rejected under 35 U.S.C. §103(a) as allegedly unpatentable over Ellis *et al.* (US 6,333,444-B1; 12-2001) (Ellis) in view of Archibald. This rejection is respectfully traversed.

Ellis discloses catalysts suitable for the oxidation of ethane and/or ethylene. The catalysts comprise molybdenum, vanadium, niobium and gold in the absence of palladium. Ellis states that the catalysts may be used unsupported or supported (col. 2 lines 62-64). Suitable supports include silica, alumina, zirconia, titania, silicon carbide and mixtures thereof. It is noted, however, that the catalysts prepared in the Ellis Examples are not supported. Furthermore, the catalysts are prepared by mixing solutions of the metal components (in the **absence** of any support material), evaporating to dryness, and then grinding the resulting dried catalyst. Thus, the Ellis

preparative method involves evaporation and grinding to produce a powder. The Ellis method is therefore **not** the same as that of the present invention which requires mixing with a support and spray-drying the mixture.

As noted above, the claims are specific to the use of alpha alumina. Surprisingly, the use of alpha-alumina as a support material in the present invention has been found to reduce the amount of carbon oxide by-products (and increase selectivity to the desired products) which are produced in an ethane/ethylene oxidation process compared to the use of the same catalyst supported on a silica support. This is shown in Figure 1 of the present application.

Archibald does not cure the above-noted deficiencies of Ellis. Archibald contains no suggestion of the preparation of a catalyst comprising a combination of molybdenum, vanadium, niobium and gold components. Moreover, Archibald does not suggest the preparation of a catalyst comprising a combination of molybdenum, vanadium, niobium and gold components in combination with any alumina, let alone, alpha-alumina. Archibald also does not suggest that the inclusion of alumina in a catalyst would allow an improved oxidation of ethane/ethylene process to be achieved. Archibald furthermore does not suggest that the catalysts prepared by the method of Archibald would be suitable for use in oxidation processes (col. 1, lines 3-9 lists several types of processes but oxidation is **not** included).

The present case demonstrates that there is a surprising difference at least between silica and alumina supports. Ellis does not distinguish between silica and alumina supports. Ellis does not lead one of ordinary skill to the idea that the inclusion of an alumina support would enable a superior ethane/ethylene oxidation catalyst to be

achieved. There is simply no suggestion in Ellis that the use of a support catalyst *per se* would be advantageous.

Thus, even if one of ordinary skill were to combine Ellis and Archibald (it is believed that such a combination would not have been contemplated by one of ordinary skill), the combined disclosures of Ellis and Archibald would not have lead to the person of ordinary skill to the invention as claimed. Thus, neither Ellis nor Archibald suggests the use of **alpha-alumina** as a support, and neither Ellis nor Archibald suggests that the inclusion of alpha-alumina in a Mo/V/Nb or Pd catalyst would achieve any improvement in an ethane/ethylene oxidation process.

Based on the above, a person of ordinary skill would have had **no** motivation to alter the catalyst preparation disclosed by Ellis to include alpha-alumina. Absent any such motivation, it is clear that Ellis and Archibald do not give rise to a *prima facie* case of obviousness. Withdrawal of the obviousness rejection is respectfully requested.

VI. ALLOWABLE SUBJECT MATTER

It is noted, with appreciation, that claim 49 is allowable. With the arguments and amendments presented herein, it is believed that all of the claims are in condition for allowance. Early notice to that effect is awaited.

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Favorable action is awaited.

Respectfully submitted,

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